

What is claimed is:

1. An acetabular reamer for cutting a required cut shape, comprising a cutting shell having a series of cutting teeth thereon of a quantity to substantially reduce a cutting pressure on each tooth as well as to reduce a size of a typical chip generated upon cutting, wherein substantially all the teeth are doubly curved, having a matched arc cutting edge of substantial length, the matched arc cutting edge having a cutting profile which substantially matches a profile of the shape to be cut, thereby reducing a number of teeth required to cut the shape.
2. The reamer of claim 1 wherein a generally circular hole precedes the cutting edges as the reamer is rotated for cutting.
3. The reamer of claim 1, wherein the series of cutting teeth are arranged uniformly and spaced apart on the cutting shell.
4. The reamer of claim 1, wherein the cutting teeth are arranged in a spiral arrangement on the cutting shell.
5. The reamer of claim 1, wherein the cutting shell is a portion of a sphere in which the length of the cutting edges are selected so as to completely cut the shape, thereby potentially using less teeth than permissible with a cutting shell that has a more complete hemispherical shape.
6. The reamer of claim 5, wherein the cutting shell is a hemisphere or portion thereof.
7. The reamer of claim 2, wherein the series of cutting teeth are arranged uniformly and spaced apart on the cutting shell.
8. The reamer of claim 2, wherein the cutting teeth are arranged in a spiral arrangement on the cutting shell.
9. The reamer of claim 3, wherein the cutting teeth are arranged in a spiral arrangement on the cutting shell.

10. The reamer of claim 2, wherein the cutting shell is a portion of a sphere in which the length of the cutting edges are selected so as to completely cut the shape, thereby potentially using less teeth than permissible with a cutting shell that has a more complete hemispherical shape.

11. The reamer of claim 3, wherein the cutting shell is a portion of a sphere in which the length of the cutting edges are selected so as to completely cut the shape, thereby potentially using less teeth than permissible with a cutting shell that has a more complete hemispherical shape.

12. The reamer of claim 4, wherein the cutting shell is a portion of a sphere in which the length of the cutting edges are selected so as to completely cut the shape, thereby potentially using less teeth than permissible with a cutting shell that has a more complete hemispherical shape.